```
%{
int positive_no = 0, negative_no = 0;
%}
%%
^[-][0-9]+ {negative_no++;
                    printf("negative number = %s\n",
                        yytext);} // negative number

[0-9]+ {positive_no++;
            printf("positive number = %s\n",
                yytext);} // positive number
%%
int yywrap(){}
int main()

{
yylex();
printf ("number of positive numbers = %d,"
            "number of negative numbers = %d\n",
                positive_no, negative_no);

return 0;
}
```

```
07/11/2023    03:09 PM    <DIR>         logs
05/07/2022    10:54 AM    <DIR>         PerfLogs
02/21/2024    10:43 AM    <DIR>         Program Files
02/21/2024    10:55 AM    <DIR>         Program Files (x86)
08/31/2023    01:26 PM    <DIR>         TURBOC3
01/26/2024    10:08 PM    <DIR>         Users
01/26/2024    10:16 PM    <DIR>         Windows
              0 File(s)            0 bytes
             12 Dir(s)  192,970,899,456 bytes free

C:\>cd cd lab

C:\cd lab>flex ex.6.l
flex: can't open ex.6.l

C:\cd lab>flex exe_6.l
flex: can't open exe_6.l

C:\cd lab>flex exe_6.l
flex: can't open exe_6.l

C:\cd lab>flex exe_6.l
flex: can't open exe_6.l

C:\cd lab>flex exe_6.l
flex: can't open exe_6.l

C:\cd lab>flex exe_6.l
flex: can't open exe_6.l

C:\cd lab>flex exe_1.6.l

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.6.l
12347
positive number = 12347
```

```
%{
#include <stdio.h>
int num_count = 0;
int word_count = 0;
int yywrap(void) { return 1; } // Adjusted yywrap function definition
%}

DIGITS [0-9]+
WORDS [a-zA-Z]+

%%

{DIGITS}    { printf("Number: %s\n", yytext); num_count++; }
{WORDS}     { printf("Word: %s\n", yytext); word_count++; }
.           ;

%%

int main() {
    yylex();
    printf("Total numbers: %d\n", num_count);
    printf("Total words: %d\n", word_count);
    return 0;
}
```

```
C:\cd lab>a.exe exe_1.4.l
pradeepthi

ankitha

^Z
Number of vowels: 7
Number of consonants: 10

C:\cd lab>flex exe_1.5.l

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.5.l
auto
Keyword: auto
apple
Identifier: apple
^Z

C:\cd lab>flex exe_1.7.l
flex: can't open exe_1.7.l

C:\cd lab>flex exe_1.7.l

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.7.l
ankitha
Word: ankitha

9393
Number: 9393

^Z
Total numbers: 1
Total words: 1

C:\cd lab>
```

```
%{
#include <stdio.h>
int max_length = 0;
%}

%%
[a-zA-Z]+    { if (yyleng > max_length) max_length = yyleng; }
.            ;
%%
int yywrap() {
    return 1;
}

int main() {
    yylex();
    printf("Length of the longest word: %d\n", max_length);
    return 0;
}
```

Command Prompt

```
C:\cd lab>a.exe exe_1.12.l
pradeepthi
Word: pradeepthi

>
Relational Operator: >

=

^Z

C:\cd lab>flex exe_1.10.l
flex: can't open exe_1.10.l

C:\cd lab>flex exe_1.10.l

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.10.l
pradeepthi5786

https://www.example.com
Valid URL: https://www.example.com

^Z

C:\cd lab>flex exe_1.9.l

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.9.l
pradeepthi

yeddulaankitha

^Z
Length of the longest word: 14

C:\cd lab>
```

Notepad - exe_1.10.l

Tabs: Untitled | exe_1.10.l | exe_1.10.l (active) | exe_1.12.l | exe_1.12.l | +

File Edit View

```
%{
#include <stdio.h>
%}

%%

^[a-zA-Z]+:\/\/[a-zA-Z0-9\.\-]+\.[a-zA-Z]{2,}(\/\S*)?$    { printf("Valid URL: %s
\n",yytext); }
.    ;

%%_1.10.l
int yywrap() {
    return 1;
}

int main() {
    yylex();
    return 0;
}
```

Ln 10, Col 1   217 characters   100%   Windows (CRLF)   UTF-8

Command Prompt - a.exe exe

```
C:\>cd cd lab

C:\cd lab>flex exe_1.12.l
flex: can't open exe_1.12.l

C:\cd lab>^A
'' is not recognized as an internal or external command,
operable program or batch file.

C:\cd lab>flex exe_1.12.l

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.12.l
pradeepthi
Word: pradeepthi

>
Relational Operator: >

=

^Z

C:\cd lab>flex exe_1.10.l
flex: can't open exe_1.10.l

C:\cd lab>flex exe_1.10.l

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.10.l
pradeepthi5786

https://www.example.com
Valid URL: https://www.example.com
```

91°F   Haze   Search   ENG IN   12:27 PM   2/23/2024

```
%{
#include <stdio.h>
%}

%%
^[aeiouAEIOU][a-zA-Z]*    printf("String starts with a vowel\n");
.                         printf("String does not start with a vowel\n");
%%

int yywrap() {
    return 1;
}

int main() {
    yylex();
    return 0;
}
```

```
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel

ankitha is a bad girl
String starts with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel
String does not start with a vowel


^Z

C:\cd lab>
```

```
%{
int i;
%}
%%
[a-z A-Z]* { for(i=0;i<=yyleng;i++)
              { if((yytext[i]=='a')&&(yytext[i+1]=='b')&&(yytext[i+2]=='c'))
                { yytext[i]='A';
                  yytext[i+1]='B';
                  yytext[i+2]='C';
                }
              }
            printf("%s",yytext);
          }

[\t]* return 1;
.* {ECHO;}
\n {printf("%s",yytext);}
%%
int main()
{
yylex();
}
int yywrap()
{
return 1;
}
```

Command Prompt output:

```
30-11-2023  17:01                 170 CDex23.l
30-11-2023  17:05                 198 CDex24.l
30-11-2023  17:49                 449 CDex25.l
30-11-2023  17:50              37,853 lex.yy.c
29-11-2023  09:24                 338 macro.l
29-11-2023  09:25                 114 macro_input.c
              22 File(s)         75,813 bytes
               1 Dir(s)  397,622,980,608 bytes free

C:\lex lab>lex Cdex25.l

C:\lex lab>gcc lex.yy.c

C:\lex lab>a.exe
abcd
ABCd
```

25. Write a LEX Program to convert the substring abc to ABC from the given input string.

```
%{
#include <stdio.h>
%}

%%

[a-zA-Z]+        { printf("Word: %s\n", yytext); }
"=="            { printf("Relational Operator: %s\n", yytext); }
"<"             { printf("Relational Operator: %s\n", yytext); }
">"             { printf("Relational Operator: %s\n", yytext); }
"<="            { printf("Relational Operator: %s\n", yytext); }
">="            { printf("Relational Operator: %s\n", yytext); }
"!="            { printf("Relational Operator: %s\n", yytext); }
.               ; /* Ignore other characters */

%%
int yywrap() {
    return 1;
}

int main() {
    yylex();
    return 0;
}
```

Ln 25, Col 1   598 characters   100%   Windows (CRLF)   UTF-8

```
02/22/2024  01:36 PM    <DIR>          cd lab
07/11/2023  01:05 PM    <DIR>          Dell
02/21/2024  10:54 AM    <DIR>          Flex Windows
01/27/2024  08:06 AM    <DIR>          Intel
07/11/2023  03:09 PM    <DIR>          logs
05/07/2022  10:54 AM    <DIR>          PerfLogs
02/21/2024  10:43 AM    <DIR>          Program Files
02/21/2024  10:55 AM    <DIR>          Program Files (x86)
08/31/2023  01:26 PM    <DIR>          TURBOC3
01/26/2024  10:08 PM    <DIR>          Users
01/26/2024  10:16 PM    <DIR>          Windows
               0 File(s)              0 bytes
              12 Dir(s)  192,798,126,080 bytes free

C:\>cd cd lab

C:\cd lab>flex exe_1.12.l
flex: can't open exe_1.12.l

C:\cd lab>^A
'' is not recognized as an internal or external command,
operable program or batch file.

C:\cd lab>flex exe_1.12.l

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.12.l
pradeepthi
Word: pradeepthi

>
Relational Operator: >

=

^Z

C:\cd lab>
```

Text Editor - dobvalidornot.l

```
%%
((0[1-9])|([1-2][0-9])|(3[0-1]))\/((0[1-9])|(1[0-2]))\/(19[0-9]{2}|2[0-9]{3}) printf("Valid
DoB");
.* printf("Invalid DoB");
%%

int main()
{
 yylex();
 return 0;
}
int yywrap()
{}
```

Ln 14, Col 1   100%   Windows (CRLF)   UTF-8

Command Prompt - a.exe do

```
17-05-2023  10:27    <DIR>          Program Files
07-08-2023  18:20    <DIR>          WindowsApps
               1 File(s)      1,226,215 bytes
               3 Dir(s)  152,362,115,072 bytes free

E:\>cd lex lab prgm

E:\lex lab prgm>dir
 Volume in drive E is New Volume
 Volume Serial Number is FE45-A672

 Directory of E:\lex lab prgm

30-11-2023  13:03    <DIR>          .
30-11-2023  13:01            63,392 a.exe
30-11-2023  13:00               183 digitornot.l
30-11-2023  13:03               198 dobvalidornot.l
30-11-2023  13:04            38,375 lex.yy.c
30-11-2023  12:44               367 math.l
               5 File(s)        102,515 bytes
               1 Dir(s)  152,362,115,072 bytes free

E:\lex lab prgm>flex dobvalidornot.l

E:\lex lab prgm>gcc lex.yy.c

E:\lex lab prgm>a.exe dobvalidornot.l
20/12/1987
Valid DoB
```

```c
#include <stdio.h>
#include <stdlib.h>
int macro_count = 0;
int header_count = 0;
%}

%%
"#define"   { ++macro_count; }
"#include" { ++header_count; }
.          { /* Ignore other characters */ }
%%

int yywrap() {
    return 1; // Indicate that there are no more input streams
}

int main(int argc, char *argv[]) {
    if(argc != 2) {
        printf("Usage: %s <input_file>\n", argv[0]);
        return 1;
    }

    FILE *input_file = fopen(argv[1], "r");
    if(input_file == NULL) {
        perror("Error opening input file");
        return 1;
    }

    yyin = input_file;
    yylex();

    fclose(input_file);

    printf("Number of Macros defined: %d\n", macro_count);
    printf("Number of Header files included: %d\n", header_count);

    return 0;
}
```

```
Number of Macros defined: 1
Number of Header files included: 3

C:\cd lab>
```

```
%{
#include <stdio.h>
#include <stdlib.h>
%}

%%
[0-9]+              { printf("Constant: %s\n", yytext); }
-?[0-9]+\.[0-9]+  { printf("Constant: %s\n", yytext); }
-?[0-9]+            { printf("Constant: %s\n", yytext); }
.                   { /* Ignore other characters */ }
%%

int yywrap() {
    return 1; // Indicate that there are no more input streams
}

int main(int argc, char *argv[]) {
    if(argc != 2) {
        printf("Usage: %s <input_file>\n", argv[0]);
        return 1;
    }

    FILE *input_file = fopen(argv[1], "r");
    if(input_file == NULL) {
        perror("Error opening input file");
        return 1;
    }

    yyin = input_file;
    yylex();

    fclose(input_file);
    return 0;
}
```

Ln 35, Col 1   719 characters   100%   Windows (CRLF)   UTF-8

```
C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.18.l




Constant: 0
Constant: -9

Constant: 0
Constant: -9
Constant: 0
Constant: -9

Constant: 0
Constant: -9


Constant: 1


Constant: 2

Constant: 0

Constant: 1


Constant: 1
```

```
%{
#include <stdio.h>
#include <stdlib.h>
%}

%%
"<" [^>]+ ">"      { printf("HTML tag: %s\n", yytext); }
.                  { /* Ignore other characters */ }
%%

int main(int argc, char *argv[]) {
    if(argc != 2) {
        printf("Usage: %s <input_file>\n", argv[0]);
        return 1;
    }

    FILE *input_file = fopen(argv[1], "r");
    if(input_file == NULL) {
        perror("Error opening input file");
        return 1;
    }

    yyin = input_file;
    yylex();

    fclose(input_file);
    return 0;
}
```

Ln 29, Col 1   524 characters   100%   Windows (CRLF)   UTF-8

```
Microsoft Windows [Version 10.0.22621.3007]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DELL>cd/

C:\>dir
 Volume in drive C has no label.
 Volume Serial Number is B857-0993

 Directory of C:\

09/02/2023  10:51 PM    <DIR>          altera
02/23/2024  01:14 PM    <DIR>          cd lab
07/11/2023  01:05 PM    <DIR>          Dell
02/21/2024  10:54 AM    <DIR>          Flex Windows
01/27/2024  08:06 AM    <DIR>          Intel
07/11/2023  03:09 PM    <DIR>          logs
05/07/2022  10:54 AM    <DIR>          PerfLogs
02/21/2024  10:43 AM    <DIR>          Program Files
02/21/2024  10:55 AM    <DIR>          Program Files (x86)
08/31/2023  01:26 PM    <DIR>          TURBOC3
01/26/2024  10:08 PM    <DIR>          Users
01/26/2024  10:16 PM    <DIR>          Windows
               0 File(s)              0 bytes
              12 Dir(s)  192,729,092,096 bytes free

C:\>cd cd lab

C:\cd lab>flex exe_1.17.l

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.17.l
Number of characters: 696
Number of lines: 43
Number of words: 103

C:\cd lab>
```

File   Edit   View   Search   Document   Project   Tools   Browser   ZC   Window   Help

Directory   Cliptext

[C:] Windows-SSD

C:\
Flex Windows
Bison
custom_build_r
data
EditPlusPortabl
gcc

23.l
23.l.bak
a.exe
char.l
count.l
Flex Windows (Lex and Ya
FlexLexer.h
lex.yy.c
LexEditor.bat
LexEditor.exe
README.txt
uninstall.exe
win_bison.exe
win_flex.exe

```
 1  %{
 2  int nchar, nword, nline;
 3  %}
 4  %%
 5  \n { nline++; nchar++; }
 6  [^ \t\n]+ { nword++, nchar += yyleng; }
 7  . { nchar++; }
 8  %%
 9
10  int yywrap(void) {
11  return 1;
12  }
13  int main(int argc, char *argv[]) {
14  yyin = fopen(argv[1],"r");
15  yylex();
16  printf("Number of characters = %d\n", nchar);
17  printf("Number of words = %d\n", nword);
18  printf("Number of lines = %d\n", nline);
19  fclose(yyin);
20  }
```

All Files (*.*)

21.l

For Help, press F1   In 18   col 9   20   4E   PC   ANSI

Command Prompt

```
18-11-2023   09:53              423 char.l
18-11-2023   10:06              406 count.l
18-11-2023   09:10    <DIR>         custom_build_rules
18-11-2023   09:10    <DIR>         data
18-11-2023   09:10    <DIR>         EditPlusPortable
18-11-2023   09:10               50 Flex Windows (Lex and
Yacc) website.url
17-06-2014   02:15            6,423 FlexLexer.h
18-11-2023   09:10    <DIR>         gcc
18-11-2023   09:10    <DIR>         Lex
20-11-2023   12:13           37,558 lex.yy.c
06-07-2014   23:43               41 LexEditor.bat
06-07-2014   23:44        1,166,336 LexEditor.exe
17-06-2014   21:20            2,424 README.txt
18-11-2023   09:10           72,183 uninstall.exe
17-06-2014   21:16          514,048 win_bison.exe
17-06-2014   02:18          546,816 win_flex.exe
              17 File(s)      2,382,283 bytes
               7 Dir(s)  71,662,190,592 bytes free

C:\Flex Windows>flex 21.l

C:\Flex Windows>gcc lex.yy.c

C:\Flex Windows>a.exe 21.c
Number of characters = 254
Number of words = 33
Number of lines = 9

C:\Flex Windows>
```

Notepad (exe_1.l):

```
"#"         { printf("Preprocessor Directive: %s\n", yytext); }
"include"   { printf("Header File: %s\n", yytext); }
"void"      { printf("Data Type: %s\n", yytext); }
"int"       { printf("Data Type: %s\n", yytext); }
"printf"    { printf("Function Call: %s\n", yytext); }
"("         { printf("Left Parenthesis: %s\n", yytext); }
")"         { printf("Right Parenthesis: %s\n", yytext); }
"="         { printf("Assignment Operator: %s\n", yytext); }
";"         { printf("Semicolon: %s\n", yytext); }
\"[^\"\n]*\"  { printf("String Literal: %s\n", yytext); }
[0-9]+      { printf("Integer Constant: %s\n", yytext); }
[a-zA-Z_][a-zA-Z0-9_]*  { printf("Identifier: %s\n", yytext); }
.           { printf("Unrecognized Token: %s\n", yytext); }

%%

int main(int argc, char *argv[]) {
    if (argc != 2) {
        printf("Usage: %s input_file\n", argv[0]);
        return 1;
    }

    FILE *input_file = fopen(argv[1], "r");
    if (!input_file) {
        perror("Error opening input file");
        return 1;
    }

    // Set the input file for the lexer
    yyin = input_file;

    // Call the lexer
    yylex();

    // Close the file
    fclose(input_file);

    return 0;
}
```

Status bar: Ln 47, Col 1 | 1,227 characters | 100% | Windows (CRLF) | UTF-8

Command Prompt:

```
02/21/2024  10:54 AM    <DIR>          Flex Windows
01/27/2024  08:06 AM    <DIR>          Intel
07/11/2023  03:09 PM    <DIR>          logs
05/07/2022  10:54 AM    <DIR>          PerfLogs
02/21/2024  10:43 AM    <DIR>          Program Files
02/21/2024  10:55 AM    <DIR>          Program Files (x86)
08/31/2023  01:26 PM    <DIR>          TURBOC3
01/26/2024  10:08 PM    <DIR>          Users
01/26/2024  10:16 PM    <DIR>          Windows
               0 File(s)              0 bytes
              12 Dir(s)  192,249,139,200 bytes free

C:\>cd cd lab

C:\cd lab>flex exe_1.22.l

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.22.l
Usage: a.exe input_file output_file

C:\cd lab>flex exe_1.23.l

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.23.l
Unrecognized Token: %
Unrecognized Token: {

Preprocessor Directive: #
Header File: include
Unrecognized Token:
Unrecognized Token: <
Identifier: stdio
Unrecognized Token: .
Identifier: h
Unrecognized Token: >

Unrecognized Token: %
```

```
"//"     { comment_lines_count++; }
.        { fprintf(output_file, "%s", yytext); }

%%

int main(int argc, char *argv[]) {
    if (argc != 3) {
        printf("Usage: %s input_file output_file\n", argv[0]);
        return 1;
    }

    FILE *input_file = fopen(argv[1], "r");
    if (!input_file) {
        perror("Error opening input file");
        return 1;
    }

    output_file = fopen(argv[2], "w");
    if (!output_file) {
        perror("Error opening output file");
        fclose(input_file);
        return 1;
    }

    // Set the input file for the lexer
    yyin = input_file;

    // Call the lexer
    yylex();

    // Close files
    fclose(input_file);
    fclose(output_file);

    printf("Number of comment lines: %d\n", comment_lines_count);

    return 0;
}
```

Ln 29, Col 24   877 characters   100%   Windows (CRLF)   UTF-8

Microsoft Windows [Version 10.0.22621.3007]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DELL>cd/

C:\>dir
 Volume in drive C has no label.
 Volume Serial Number is B857-0993

 Directory of C:\

09/02/2023 10:51 PM   <DIR>   altera
02/23/2024 09:54 PM   <DIR>   cd lab
07/11/2023 01:05 PM   <DIR>   Dell
02/21/2024 10:54 AM   <DIR>   Flex Windows
01/27/2024 08:06 AM   <DIR>   Intel
07/11/2023 03:09 PM   <DIR>   logs
05/07/2022 10:54 AM   <DIR>   PerfLogs
02/21/2024 10:43 AM   <DIR>   Program Files
02/21/2024 10:55 AM   <DIR>   Program Files (x86)
08/31/2023 01:26 PM   <DIR>   TURBOC3
01/26/2024 10:08 PM   <DIR>   Users
01/26/2024 10:16 PM   <DIR>   Windows
               0 File(s)   0 bytes
              12 Dir(s) 192,249,139,200 bytes free

C:\>cd cd lab

C:\cd lab>flex exe_1.22.l

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.22.l
Usage: a.exe input_file output_file

C:\cd lab>

```
%{
#include <stdio.h>
int whitespace_count = 0;
int newline_count = 0;
int yywrap() { return 1; }
%}

%%

[ \t]       { whitespace_count++; }
\n          { newline_count++; }

.           ; // Ignore other characters

%%

int main() {
    yylex();
    printf("Number of whitespace characters: %d\n", whitespace_count);
    printf("Number of newline characters: %d\n", newline_count);
    return 0;
}
```

```
exe_1.28.c:15:14: error: expected ';' before '{' token

C:\cd lab>flex exe_1.28.c

C:\cd lab>gcc lex.yy.c
exe_1.28.c: In function 'yylex':
exe_1.28.c:15:8: error: expected expression before 'void'
exe_1.28.c:15:8: error: too many arguments to function 'yywrap'
lex.yy.c:382:12: note: declared here
exe_1.28.c:15:14: error: expected ';' before '{' token

C:\cd lab>flex exe_1.29.c

C:\cd lab>gcc lex.yy.c
C:\Users\DELL\AppData\Local\Temp\ccCWCBEl.o:lex.yy.c:(.text+0x2cf): undefine
d reference to 'yywrap'
C:\Users\DELL\AppData\Local\Temp\ccCWCBEl.o:lex.yy.c:(.text+0x9af): undefine
d reference to 'yywrap'
c:/flex windows/gcc/bin/../lib/gcc/mingw32/4.7.2/../../../../mingw32/bin/ld.
exe: C:\Users\DELL\AppData\Local\Temp\ccCWCBEl.o: bad reloc address 0x4a8 in
 section '.rdata'
c:/flex windows/gcc/bin/../lib/gcc/mingw32/4.7.2/../../../../mingw32/bin/ld.
exe: final link failed: Invalid operation
collect2.exe: error: ld returned 1 exit status

C:\cd lab>flex exe_1.29.c

C:\cd lab>gcc lex.yy.c
lex.yy.c:377:12: warning: prototype for 'yywrap' follows non-prototype defin
ition [enabled by default]

C:\cd lab>a.exe exe_1.29.c
she is watching moble since      2 hours
she is till watching
^Z
Number of whitespace characters: 13
Number of newline characters: 2

C:\cd lab>
```

```
}
"="|"+"|"-"|"*"|"/"|"++"|"--" {
    printf("Operator: %s\n", yytext);
    operator_count++;
}
{LINE_COMMENT} {
    printf("Line comment: %s\n", yytext);
    comment_count++;
}
{BLOCK_COMMENT_START} {
    printf("Block comment start: %s\n", yytext);
    comment_count++;
    while (1) {
        char c = yyinput();
        if (c == '*') {
            c = yyinput();
            if (c == '/') {
                printf("Block comment end\n");
                comment_count++;
                break;
            }
        }
    }
}
{WS}        ; // Ignore whitespace
.           ; // Ignore other characters

%%

int main() {
    printf("Enter a C program (Ctrl+D to end):\n");
    yylex();
    printf("\n\nSummary:\n");
    printf("Identifiers found: %d\n", identifier_count);
    printf("Constants found: %d\n", constant_count);
    printf("Operators found: %d\n", operator_count);
    printf("Comments found: %d\n", comment_count);
    return 0;
}
```

Ln 75, Col 1   1,641 characters   100%   Windows (CRLF)   UTF-8

Command Prompt - a.exe exe

```
Summary:
Identifiers found: 4
Constants found: 0
Operators found: 1

C:\cd lab>flex exe_1.27.c

C:\cd lab>gcc lex.yy.c
C:\Users\DELL\AppData\Local\Temp\ccs8Zka5.o:lex.yy.c:(.text+0x283): undefine
d reference to 'yyinput'
C:\Users\DELL\AppData\Local\Temp\ccs8Zka5.o:lex.yy.c:(.text+0x291): undefine
d reference to 'yyinput'
C:\Users\DELL\AppData\Local\Temp\ccs8Zka5.o:lex.yy.c:(.text+0x3cb): undefine
d reference to 'yywrap'
C:\Users\DELL\AppData\Local\Temp\ccs8Zka5.o:lex.yy.c:(.text+0xaab): undefine
d reference to 'yywrap'
c:/flex windows/gcc/bin/../lib/gcc/mingw32/4.7.2/../../../../mingw32/bin/ld.
exe: C:\Users\DELL\AppData\Local\Temp\ccs8Zka5.o: bad reloc address 0x66c in
 section '.rdata'
c:/flex windows/gcc/bin/../lib/gcc/mingw32/4.7.2/../../../../mingw32/bin/ld.
exe: final link failed: Invalid operation
collect2.exe: error: ld returned 1 exit status

C:\cd lab>flex exe_1.27.c

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.27.c
Enter a C program (Ctrl+D to end):
they both are friends&also calssmates!
Identifier: they
Identifier: both
Identifier: are
Identifier: friends
Identifier: also
Identifier: calssmates
```

```
DIGIT        [0-9]
ALPHA        [a-zA-Z]
ALPHANUM     ([a-zA-Z][a-zA-Z0-9]*)
WS           [ \t\r]+
COMMENT      ("//".*)

%%
{ALPHANUM} {
    if (strlen(yytext) <= 32) {
        printf("Identifier: %s\n", yytext);
        identifier_count++;
    } else {
        printf("Error: Identifier too long: %s\n", yytext);
    }
}
{DIGIT}+(\.{DIGIT}+)?   {
    printf("Constant: %s\n", yytext);
    constant_count++;
}
"="|"+"|"-"|"*"|"/"|"++"|"--" {
    printf("Operator: %s\n", yytext);
    operator_count++;
}
{WS}        ; // Ignore whitespace
{COMMENT}   ; // Ignore comments
.           ; // Ignore other characters

%%

int main() {
    printf("Enter a C program (Ctrl+D to end):\n");
    yylex();
    printf("\n\nSummary:\n");
    printf("Identifiers found: %d\n", identifier_count);
    printf("Constants found: %d\n", constant_count);
    printf("Operators found: %d\n", operator_count);
    return 0;
}
```

```
C:\cd lab>flex exe_1.25.c
"exe_1.25.c", line 9: undefined definition {target_word}

C:\cd lab>flex exe_1.25.c
"exe_1.25.c", line 9: undefined definition {target_word}

C:\cd lab>flex exe_1.25.l
"exe_1.25.l", line 9: undefined definition {target_word}

C:\cd lab>flex exe_1.26.c

C:\cd lab>gcc lex.yy.c
C:\Users\DELL\AppData\Local\Temp\cc63G6zc.o:lex.yy.c:(.text+0x34a): undefine
d reference to 'yywrap'
C:\Users\DELL\AppData\Local\Temp\cc63G6zc.o:lex.yy.c:(.text+0xa2a): undefine
d reference to 'yywrap'
c:/flex windows/gcc/bin/../lib/gcc/mingw32/4.7.2/../../../../mingw32/bin/ld.
exe: C:\Users\DELL\AppData\Local\Temp\cc63G6zc.o: bad reloc address 0x62c in
 section '.rdata'
c:/flex windows/gcc/bin/../lib/gcc/mingw32/4.7.2/../../../../mingw32/bin/ld.
exe: final link failed: Invalid operation
collect2.exe: error: ld returned 1 exit status

C:\cd lab>flex exe_1.26.c

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.26.c
Enter a C program (Ctrl+D to end):
>

she is a girl!*&
Identifier: she
Identifier: is
Identifier: a
Identifier: girl
Operator: *
```

```
%{
#include <stdio.h>
#include <string.h>
int valid_identifier = 0;
%}

%option noyywrap

%%

[a-zA-Z_][a-zA-Z0-9_]*  { valid_identifier = 1; }
.                       ; // Ignore other characters

%%

int main() {
    char identifier[100];
    printf("Enter an identifier: ");
    scanf("%s", identifier);
    yy_scan_string(identifier);
    yylex();
    if (valid_identifier) {
        printf("The identifier \"%s\" is valid.\n", identifier);
    } else {
        printf("The identifier \"%s\" is not valid.\n", identifier);
    }
    return 0;
}
```

```
exe_1.28.c:15:14: error: expected ';' before '{' token

C:\cd lab>flex exe_1.30.c

C:\cd lab>gcc lex.yy.c
C:\Users\DELL\AppData\Local\Temp\ccyMcdi8.o:lex.yy.c:(.text+0x2be): undefine
d reference to `yywrap'
C:\Users\DELL\AppData\Local\Temp\ccyMcdi8.o:lex.yy.c:(.text+0x99e): undefine
d reference to `yywrap'
c:/flex windows/gcc/bin/../lib/gcc/mingw32/4.7.2/../../../../mingw32/bin/ld.
exe: C:\Users\DELL\AppData\Local\Temp\ccyMcdi8.o: bad reloc address 0x4c0 in
 section `.rdata'
c:/flex windows/gcc/bin/../lib/gcc/mingw32/4.7.2/../../../../mingw32/bin/ld.
exe: final link failed: Invalid operation
collect2.exe: error: ld returned 1 exit status

C:\cd lab>flex exe_1.30.c

C:\cd lab>gcc lex.yy.c
C:\Users\DELL\AppData\Local\Temp\cciWsrBo.o:lex.yy.c:(.text+0x2be): undefine
d reference to `yywrap'
C:\Users\DELL\AppData\Local\Temp\cciWsrBo.o:lex.yy.c:(.text+0x99e): undefine
d reference to `yywrap'
c:/flex windows/gcc/bin/../lib/gcc/mingw32/4.7.2/../../../../mingw32/bin/ld.
exe: C:\Users\DELL\AppData\Local\Temp\cciWsrBo.o: bad reloc address 0x4c0 in
 section `.rdata'
c:/flex windows/gcc/bin/../lib/gcc/mingw32/4.7.2/../../../../mingw32/bin/ld.
exe: final link failed: Invalid operation
collect2.exe: error: ld returned 1 exit status

C:\cd lab>flex exe_1.30.c

C:\cd lab>gcc lex.yy.c

C:\cd lab>a.exe exe_1.30.c
Enter an identifier: they
The identifier "they" is valid.

C:\cd lab>
```

Notepad editor (CDex2) content:

```
%{
%}
[a-z.0-9]+@[a-z]+(.com|.in) {printf("\n valid \n"}
.+ {printf("\n invalid \n");}

%%
int yywrap()
{}
int main()
{
printf("\n enter:");
yylex();
}
```

Word document content:

3. Write a LEX program to identify the capital words from the given input

4. Write a LEX Program to check the email address is valid or not.

Command Prompt content:

```
30-11-2023  10:56                340 CDex18.l
30-11-2023  10:57                114 CDex18input.c
30-11-2023  11:00                321 CDex19.l
30-11-2023  11:01                 89 CDex19input.html
30-11-2023  12:19                206 CDex20.l
30-11-2023  12:19                116 CDex20input.c
30-11-2023  16:36                265 CDex21.l
30-11-2023  16:40                102 CDex21input.l
30-11-2023  16:52                447 CDex22.l
30-11-2023  16:53                198 CDex22input.c
30-11-2023  17:01                170 CDex23.l
30-11-2023  17:05                198 CDex24.l
30-11-2023  17:44             37,877 lex.yy.c
29-11-2023  09:24                338 macro.l
29-11-2023  09:25                114 macro_input.c
              21 File(s)         75,388 bytes
               1 Dir(s)  397,624,315,904 bytes free

C:\lex lab>lex CDex24.l

C:\lex lab>gcc lex.yy.c

C:\lex lab>a.exe
babitha@gmail.com

valid
valid
```